MYCOTAXON

ISSN (print) 0093-4666 (online) 2154-8889 Mycotaxon, Ltd. ©2018

April–June 2018—Volume 133, pp. 349–353
https://doi.org/10.5248/133.349

Rhexoampullifera marquesii sp. nov. on submerged twigs from a stream in Brazil

Lucas Barbosa Conceição & Luís Fernando Pascholati Gusmão

*Universidade Estadual de Feira de Santana, Programa de Pós-Graduação em Botânica,
Avenida Transnordestina, s/n, Novo Horizonte, 44036-900, Feira de Santana, Brazil*

* Correspondence to: *lgusmao@uefs.br*

Abstract—The new species *Rhexoampullifera marquesii*, collected in Bahia state, northeast Brazil on submerged decaying twigs, is described and illustrated. The fungus is mainly characterized by cylindrical, 6–15-septate, brown to dark brown conidia. A key and a synopsis table to *Rhexoampullifera* species are provided.

Key words—asexual fungi, taxonomy, tropical fungi, Brazilian Semi-arid region

Introduction

Rhexoampullifera P.M. Kirk is characterized by micronematous conidiophores and monoblastic or polyblastic conidiogenous cells producing septate conidia in simple or branched chains after rhexolytic secession (Kirk 1982). The conidial ontogeny observed in *Rhexoampullifera* is strongly related to thallic-arthric conidiogenesis, and rhexolytic disarticulation occurs in previously delimited cells of conidiogenous hyphae (Seifert & al. 2011). During a mycological survey of conidial fungi occurring on submerged decaying plant debris in the northeastern semi-arid region of Brazil, an interesting specimen was found that was clearly congeneric with *Rhexoampullifera* but differing from previously described species. We describe the fungus here as a new species.

Materials & method

Samples of submerged decaying plant material from Serra da Fumaça, Bahia, Brazil, were placed in plastic bags. The materials were washed in tap water and placed on moist filter paper in 100 mm diam. glass Petri dishes. The dishes were then placed in plastic containers (150 L capacity), containing 200 mL sterile water and 2 mL glycerol, and incubated at room temperature (Castañeda-Ruiz & al. 2016). The plant material was regularly examined for the presence of microfungi during a month of incubation. Mounts were prepared in PVL (polyvinyl alcohol and lactic acid) and measurements were taken at ×1000. Microphotographs were made using a BX51 Olympus microscope equipped with bright field and Nomarski interference optics and a DP25 Olympus digital camera. The specimen was deposited in the Herbarium of Universidade Estadual de Feira de Santana, Bahia, Brazil (HUEFS).

Taxonomy

Rhexoampullifera marquesii L.B. Conc. & Gusmão, **sp. nov.** FIG. 1

MYCOBANK MB 824255

Differs from *Rhexoampullifera* spp. by its 6–15-septate conidia.

TYPE: Brazil. Bahia State: Pindobaçu, Serra da Fumaça, 10°39′S 40°22′W, on submerged decaying twig of unidentified plant, 27.IX.2016, coll. L.B. Conceição (**Holotype**: HUEFS 234852).

ETYMOLOGY: The specific epithet is dedicated to the mycologist, Dr. Marcos Fabio Oliveira Marques (in memoriam), who also contributed to knowledge of hyphomycetes from the Brazilian Semi-arid.

COLONIES on the natural substrate effuse, hairy, brown. Mycelium superficial, hyphae branched, cylindrical, septate, thick-walled, smooth, brown to dark brown, 5–6.3 µm diam.. Hyphopodia absent. CONIDIOPHORES micronematous or reduced to conidiogenous hyphae. Conidiogenous hyphae thallic-arthric, integrated or discrete, determinate, brown to pale brown. Conidial secession rhexolytic. CONIDIA catenate, cylindrical, dry, smooth, sometimes with slight constrictions, brown to dark brown; terminal conidia 58–93 × 4.3–6.3 µm, 6–15 septate with rounded apices; intercalary conidia 60–95 × 4.3–6.3 µm, 7–13 septate, truncate at the ends; separated by 2–4 µm long light brown cells with basal and apical frills formed by disarticulation of the apical and lateral branches of the conidiogenous hyphae.

NOTE: Previously, *Rhexoampullifera* comprised three species—the type species *R. fagi* (M.B. Ellis) P.M. Kirk & C.M. Kirk, found on dead *Fagus* leaves in United Kingdom; *R. moravica* Koukol, found on a fallen trunk in Czech Republic; and *R. subglobosa* R.F. Castañeda & al., found on leaves in Brazil (Castañeda-Ruiz & al. 2001, Ellis 1976, Kirk 1982, Koukol 2012).

The conidial ontogeny described and illustrated for the current *Rhexoampullifera* species is controversial. In *R. fagi* and *R. marquesii*, the conidial ontogeny is clearly thallic-arthric, with chains of conidia originating

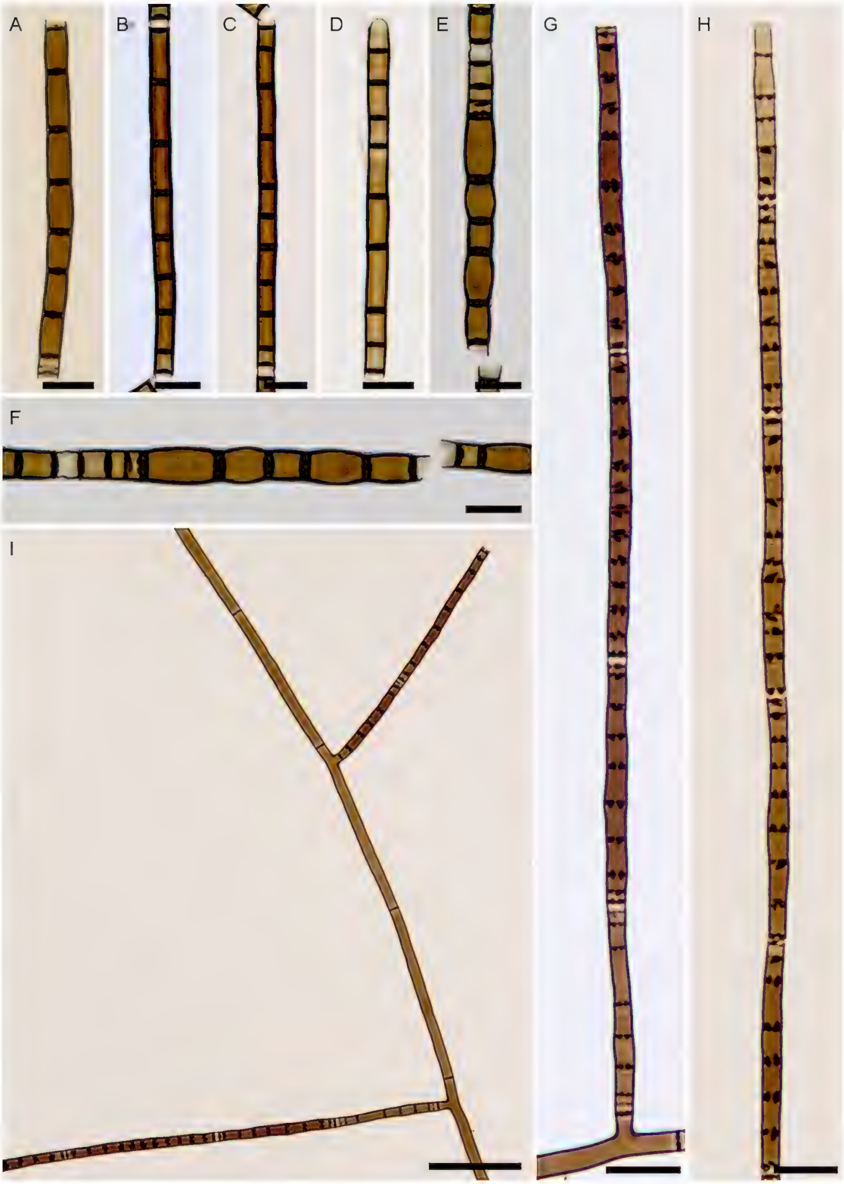

FIG. 1. *Rhexoampullifera marquesii* (holotype, HUEFS 234852). A–E. Conidia; F. Rhexolytic secession detail; G, H. Conidial chains; I. General aspect. Scale bars: A–F = 10 µm; G, H = 20 µm; I = 50 µm.

from a conidiogenous hypha and growing acropetally, but maturing basipetally, with the oldest conidia at the apical portion of the chains. However, a careful analysis of the description and illustration of *R. moravica* confirms that the conidia illustrated are clearly maturing acropetally, with the oldest conidia at the base (Koukol 2012: figs 1a, 2b). This same pattern can also be observed in the illustration of *R. subglobosa* (Castañeda-Ruiz & al. 2001: figs 1, 5), where the youngest conidia are at the apex.

Koukol's (2012) suggestion that in *R. moravica,* seceding conidia are not separated by a single separating cell but unequally on one side of a septum delimiting the two conidia suggests a secession intermediate between rhexolytic and schizolytic. *Rhexoampullifera marquesii,* which is congeneric with *R. fagi* based on conidiogenesis and conidial shape, differs in size and number of septa (Table 1) and absence of hyphopodia.

Future careful analysis of the types or access to the genetic material of these species will enable clarification of the phylogenetic relationships, but our observations indicate that *R. moravica* and *R. subglobosa* may not be congeneric with *Rhexoampullifera.*

Key to *Rhexoampullifera* species

1. Hyphae with hyphopodia .... *R. fagi*
   Hyphae without hyphopodia 2
2. Conidia with fewer than 6 septa 3
   Conidia with more than 6 septa .... *R. marquesii*
3. Conidia subglobose to turbinate, 0–2-septate .... *R. subglobosa*
   Conidia cylindrical to slightly bent, 1–6-septate .... *R. moravica*

Table 1. *Rhexoampullifera* conidial morphology

Species	Size (µm)	Shape	Septa	Reference
	Terminal / intercalary			
R. fagi	24–36 × 7–10 / 15–30 × 6–10	Cylindrical to doliiform	4 / 1–2	Kirk (1982)
R. marquesii	58–93 × 4.3–6.3 / 60–95 × 4.3–6.3	Cylindrical	6–15 / 7–13	This paper
R. moravica	23–36(–42) × 4–5 / 27–40(–45) × 4.5–6.5	Narrowly cylindrical to slightly bent	1–5 / (0)2–6	Koukol (2012)
R. subglobosa	12–24 × 10–13 / 19–21 × 9–14	Subglobose to turbinate / Cylindrical to navicular	0–2 / 0–2	Castañeda-Ruiz & al. (2001)

Acknowledgments

The authors express their gratitude to Dr. De-Wei Li and Dr. R.F. Castañeda Ruiz for critical review of the manuscript. LBC is grateful to the Programa de Pós-Graduação em Botânica (PPGBot/UEFS) and Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq); LFPG also thanks CNPq for grant (proc. 303062/2014-2).

Literature cited

Castañeda-Ruiz RF, Gené J, Guarro J. 2001. A new species of *Rhexoampullifera* from leaf litter from Brazil. Mycologia, 93(1): 168–170. https://doi.org/10.2307/3761613

Castañeda-Ruiz RF, Heredia G, Gusmão LFP, Li DW. 2016. Fungal diversity of Central and South America. 197–217, in: DW Li (ed.). Biology of Microfungi. Springer International Publishing. https://doi.org/10.1007/978-3-319-29137-6_9

Ellis MB. 1976. More dematiaceous hyphomycetes. CABI Publishing. England. 507 p.

Kirk PM. 1982. New or interesting microfungi: V. Microfungi colonizing *Laurus nobilis* leaf litter. Transactions of the British Mycological Society 78(2): 293–303. https://doi.org/10.1016/s0007-1536(82)80013-2

Koukol O. 2012. A new species of *Rhexoampullifera* (*Pezizomycotina*) from a rotten broadleaved trunk. Czech Mycology 64(1): 73–78.

Seifert K, Morgan-Jones G, Gams W, Kendrick B. 2011. The genera of hyphomycetes. CBS Biodiversity Series 9. 997 p.